



Cement Laboratory

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**Cement is like flour in a
cake....**



**...Without it you don't have
concrete.**

Concrete – Cement



Soils

Deserts



Oceans



Rivers



Additives



Money



Freeway

Highway

By-way



Tests

C109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

C151 – Standard Test Method for Autoclave Expansion of Portland Cement

C157 – Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete

C185 – Standard Test Method for Air Content of Hydraulic Cement Mortar

Tests

C187 – Standard Test Method for Normal Consistency of Hydraulic Cement

C191 – Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle

C204 – Standard Test Method for Fineness of Hydraulic Cement by Air Permeability Apparatus

C266 – Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles

Tests

C305 – Standard Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency

C430 – Standard Test Method for Fineness of Hydraulic Cement by the 45- μm (No. 325) Sieve

C451– Standard Test Method for Early Stiffening of Hydraulic Cement (Paste Method)

C1038 – Standard Test Method for Expansion of Portland Cement Mortar Bars Stored in Water

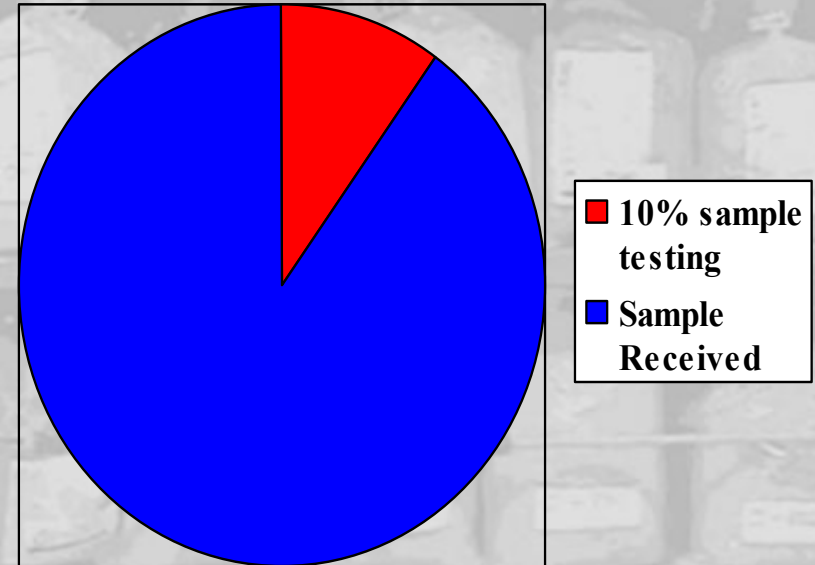
Equipment



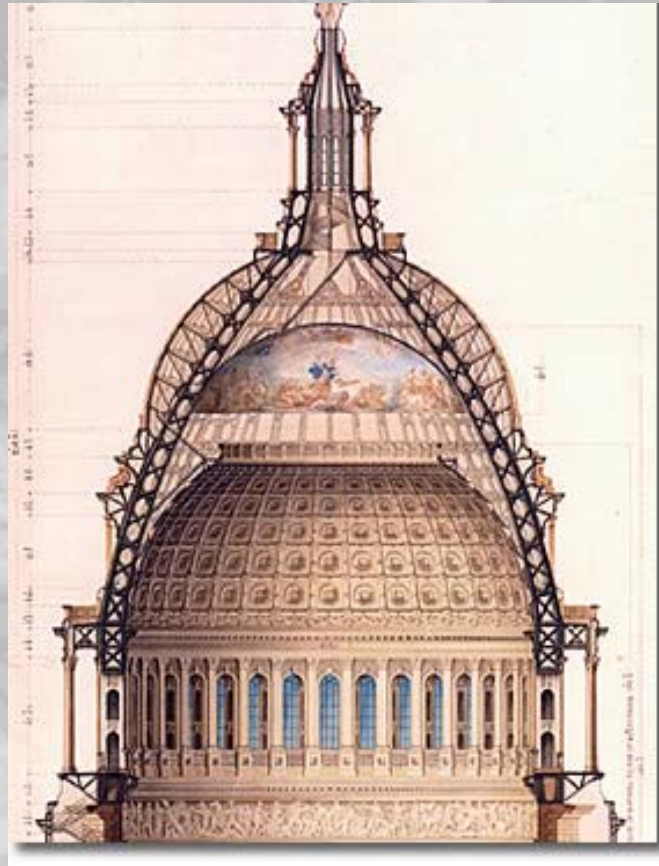
Cement



Cement



Federal Government (FHWA)

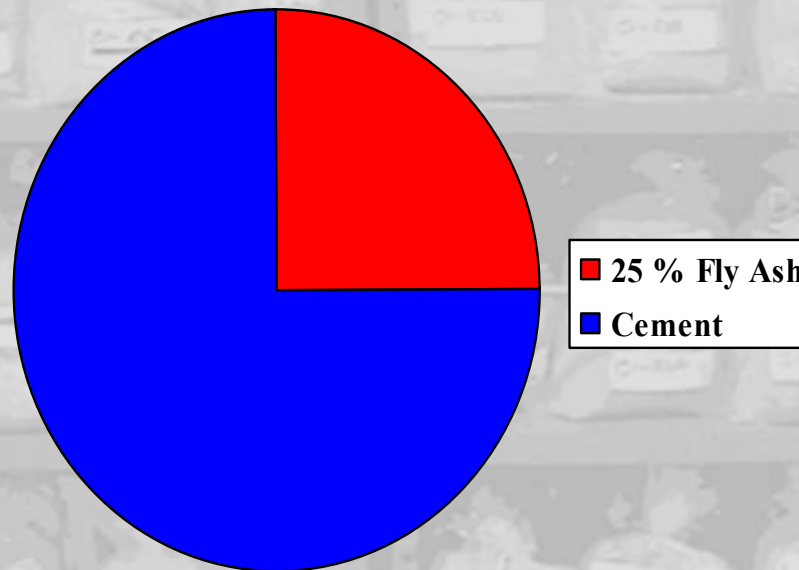


Reactive Aggregate Problems



ASTM C311-98b Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete

Fly Ash Percentage



We are family



Construction Manual



CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Read This!

construction manual

8-01-1
1997-1

State of California - Department of Transportation

CONSTRUCTION MANUAL - CHAPTER VIII

SAMPLING AND TESTING

Section 8-01-Sample Types and Frequencies

General

Sampling and testing of materials or products and quality of work must be in strict accordance with contract specifications. Sampling and testing are of equal importance.

Samplers must be familiar with materials handling and processing methods as well as contract requirements. Their knowledge of testing must be sufficient to assure compatibility between samples and test procedures.

It is the Resident Engineer's responsibility to ensure the safety of the sampler. The sampler should report any hazardous conditions encountered to the Resident Engineer. The District Weights and Measures Coordinator inspects Material Production Plants for safety in those areas that the sampler will enter.

Types of Sampling and Testing

Preliminary Tests

Preliminary Tests are tests prior to award of a contract. Construction personnel rarely sample for

Aggregates for concrete mixture	4 weeks*
Screenings	2 weeks
Soils	3 weeks
Untreated base materials	3 weeks

*Sixty days for aggregates to be used in PCC pavement. Four months for concrete subject to freezing and thawing. (See Sections 6-40 and 6-90 of this Manual for additional information.)

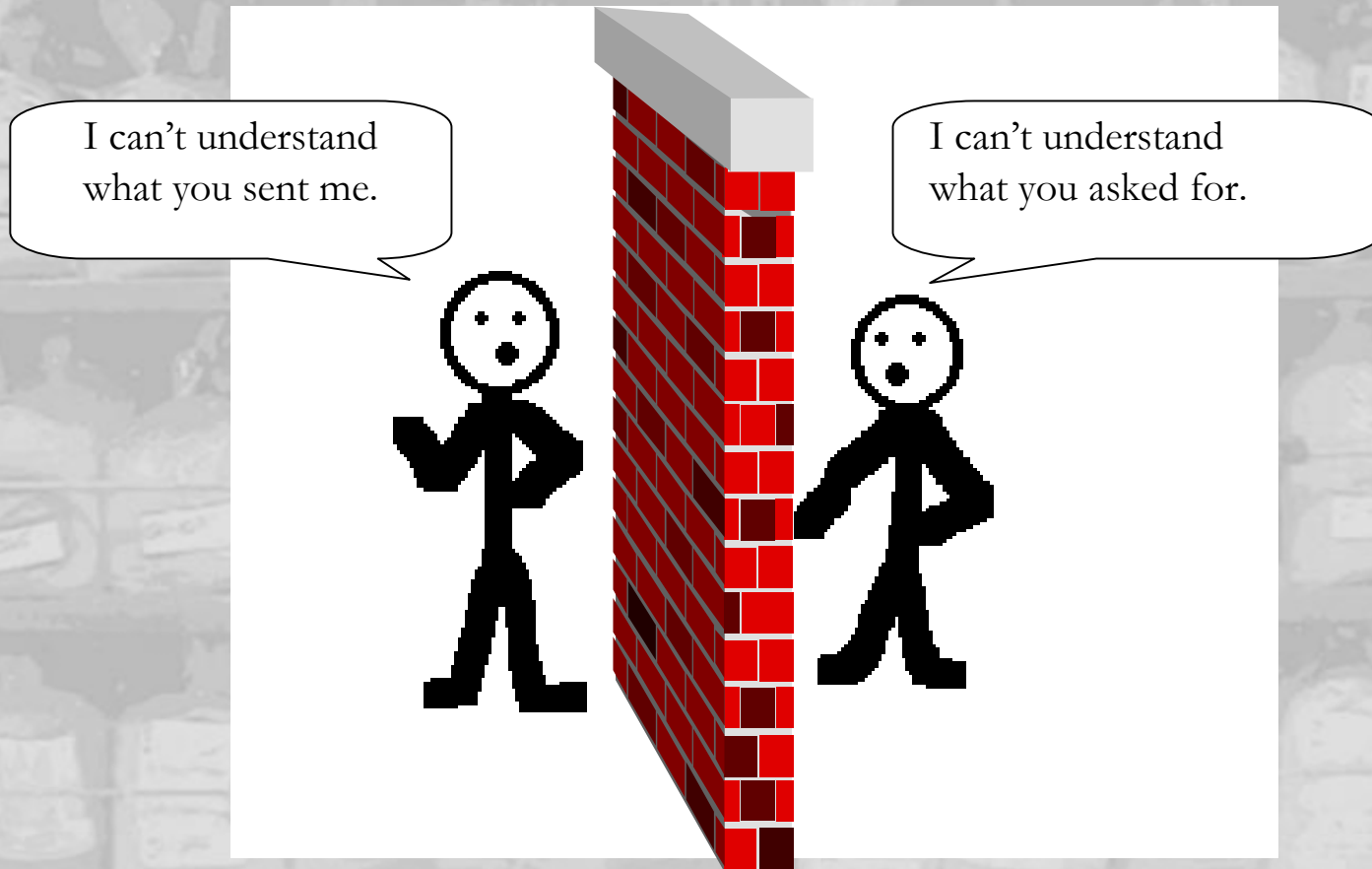
Acceptance Tests

Acceptance Tests are tests performed on the materials proposed for use in the project. They are taken by the construction personnel to determine if the material conforms to specifications.

Sampling begins the day material is in place or the first day of work performance. Sampling and testing progresses as work is in progress.

Representative sampling of materials entering the work occurs at locations specified in the Standard Specifications or Special Provisions, or if not so specified, at the location indicated on the "Size, Frequency, and Location of Sampling and Testing"

Problems with Communications



Thank You

